INFLATION TARGETING CENTRAL BANKS RESPONSE TO ASSET PRICE FLUCTUATION: A NIGERIAN PERSPECTIVE ON THE ISSUES OF ASSET PRICES, INFLATION AND BUSINESS CYCLE

[1]ALAKA, Adedayo; [2]UCHEAGA, Emeka Gerald; [3]ADU, Omobola

[1]Department of Banking and Finance; Yaba College of Technology, Yaba, Lagos State, Nigeria.

[2]Department of Banking and Finance; Studies, College of Business and Social Sciences, Covenant University, Ota, Ogun State, Nigeria.

[3]Department of Economics and Development Studies; College of Business and Social Sciences, Covenant University, Ota, Ogun State, Nigeria.

ABSTRACT

Wealth transmission effect in economics states that as households' wealth increase, consumption will also rise but at a less proportionate increase than the increase in wealth. Thus, Central Bankers have long assumed that asset prices and consumer price inflation share a positive relationship. However, the paper disputes this hypothesis. This paper seeks to examine the relationship between asset prices and inflation so as to recommend the appropriate monetary policy response for an inflation targeting Central Bank during an asset price boom considering its risk to inflation. Secondary data was obtained from World Bank World Development Indicators 2016 and CBN Statistical Bulletin 2016. The study employs the Hodrick-Prescott filter, Granger causality test and the Impulse Response Function for data analysis. The study found that the cross-correlation between the All Share Index and Consumer Price Inflation is countercyclical. The study also found that the All Share Index Granger causes inflation after two lags at 5 percent level of statistical significance. This implies that as the stock market price increases, inflation tends to fall. This study recommends that asset prices should be integrated into the core monetary policy framework since they are useful predictors of near future inflation rate.

Keywords: All Share Index, Consumer Price Inflation, Asset price boom

1. INTRODUCTION

The skyrocketing inflation rate in Nigeria can easily be traced to the weak Naira and the growing money supply. By November 2016, year on year inflation rose to 18.3 percent from around 9.4 percent in 2015, money supply grew by 18 percent year on year against a 5.5 percent growth in 2015 and the Naira had depreciated in the interbank market from 199 Naira/$ in 2015 to settle

above 300 Naira/$ in 2016 (CBN, 2016). Despite the fall in household net worth due to a stock market decline that began in 2014, consumer price inflation has continued to rise in Nigeria between 2015 and 2016 from 9 percent to 16 percent respectively (Emiefele, 2016). One of the main goals of the Central Bank is to ensure price stability using monetary policy tools, however, early detection of inflation catalysts is key to preventing inflationary pressures before they occur (Yao, Luo, & Loh, 2013)

Inflation is a general increase in the price of goods and services. Keynes (1936) opines that households tend to raise spending when income increases but at a lower proportion than the growth in the income. Households can earn income either through providing labour services or capital investments. Labour income is rigid and slow to change, while investment income is susceptible to changes in the general economy and has high tendency to rise and fall rapidly. Since the level of household wealth is tied directly or indirectly to asset price performance, an examination of the link between asset price fluctuation and inflation variation could provide useful information in improving monetary policy decisions. Perhaps, wide variations in inflation levels could be explained by asset price swings.

Historically, the lowest rate of inflation in Nigeria which was 5 percent in 2007 occurred in the same year when the stock market index was at its highest level ever, finishing the year 2007 at 57,990 points (CBN, 2016). According to Fama (1970), stock prices move in a random manner. If inflation rate is heavily influenced by stock prices then inflation may also take a random walk, thus increasing the complexity of monetary policy decision making to ensure price stability in the country. Theoretically, stock prices and inflation should exhibit positive relationship since households tend to increase spending as they make substantial gains investing in the stock market. If inflation responds principally to fluctuation in stock prices, then rapid increase in the stock prices may cause the rate of inflation to overshoot the monetary policy target (Selody & Wilkins, 2004). This therefore makes integrating stock prices into monetary policy framework imperative (ECB, 2010)

However, most many Central Banks including the Central Bank of Nigeria only observe the stock market passively and do not consider stock market movement as an important indicator during monetary policy deliberations (Cite). A better understanding of the link between stock prices and inflation is necessary to provide more basis for the inclusion of stock market prices to monetary policy framework which may improve monetary policy decision in Nigeria. Thus, this study examines the co-movement between asset prices, consumer price inflation, and the business cycle in Nigeria and specifically how a shock to asset prices influences inflation. We then discuss the implication of our findings to monetary policy decisions in the country.

2. LITERATURE REVIEW

Vickers (2000) argued that since asset prices tend to indicate inflation prospects, asset prices should be included into the monetary policy framework. However, Filardo (2000) found that although a correlation exists between housing prices and inflation, integrating asset prices to consumer price index analysis will neither improve monetary policy decisions nor boost US macroeconomic performance since asset prices has a weak prediction strength of inflation direction. In far China, Yao, Luo, & Loh (2013) traced a link between inflation rate and rising housing prices which forced the Central Bank to tighten monetary policy in 2010.

Some economists believe that the consumption boom in late nineties and mid 2000s was influenced by the internet bubble and the housing market bubble respectively (Airaudo, Nisticò, & Zanna, 2015). Such incremental spending without a proportional growth in output could cause inflation. If non Ricardian households are enticed into increasing consumption as a result of stock market gains, they could cut consumption even faster during a stock market crash. The wild swings in consumer spending has both inflationary and deflationary pressures which will leave Central Banks on the back foot if they do not act swiftly to bust non-fundamental asset price increase and act to boost asset prices when they are grossly undervalued during periods of economic uncertainty.

However, if monetary policy were to react directly to asset price movements because of the inflation prospects that are inherently priced into the assets the result may lead to a systemic calamity. Asset prices do not move solely on the direction of future consumer price inflation but are affected by other factors which include but are not limited to rising earnings and risk appetite of investors (Filardo, 2000). Interest rate moves have far reaching consequences beyond asset price manipulation to unintended consequences like slowing output growth or even overheating the economy (Gilchrista & Leahy, 2002).

Still, Selody & Wilkins (2004) concluded that it will be in the interest of the Canadian Central bank to react to rising asset prices especially home prices by tightening monetary policy in order to keep inflation from rising beyond the target rate and vice versa. The variations in the findings on monetary policy action towards asset prices and inflation is less conflicting than is immediately obvious. The manner in which variations in asset prices could lead to inflationary pressures in the economy depends on the amount of household and corporate wealth that is invested in the financial markets. Thus, monetary policy response to variations in asset prices is country specific and not a general canon. Therefore, this study seeks to identify the co-movement between asset prices, consumer price inflation, and the business cycle in Nigeria and specifically how a shock to asset prices influences inflation. We then discuss the implication of our findings to monetary policy decisions in the country.

3. THEORETICAL FRAMEWORK AND METHODOLOGY

3.1 Theoretical Framework

This paper makes use of the New Keynesian Economic theory formally regarded as the New Keynesian Dynamic Stochastic General Equilibrium (DSGE) theory. The theory came into prominence following the modeling of Real Business Cycle (RBC) theory in the "Time to Build and Aggregate Fluctuations" paper by Kyland and Prescott (1982). The paper was able to present a dynamic model that incorporated the household and firms decision towards utility and profit maximization. The RBC theory showed that real or productivity shocks are the major cause of disturbances in an economy.

According to Ireland (2004), the DSGE theory was formed on the basis of the RBC theory as it retained the idea that real shocks are important in shaping the dynamic behaviour of key macroeconomic agents (Alege, 2009). The theory also adopted the idea of including the basic microeconomic foundations of the decisions of the household and firms. However, the major difference with the RBC theory lies in the following: It assumes that markets are imperfect with the existence of information asymmetry against the assumption of perfect markets in RBC. Nominal rigidities exist in the market in the form of wages and prices that causes short-run inflexibilities that leads to involuntary unemployment. More importantly, that shocks to nominal variables such as the interest rate and money supply can influence macroeconomic fluctuations in an economy. The New Keynesian DSGE model therefore believes that macroeconomic fluctuations in the economy are driven by both real and nominal shocks.

Similarly to RBC models, DSGE models are characterized by certain key assumptions. According to Alege (2009), the household sector is composed of a large number of identical individuals with the preference of consumption, labour and real money balances; there is a large number of identical firms that makes use of both labour and capital services in the production of goods and services; there exists wage and price rigidities; an open economy; and the existence of monetary authorities and a financial intermediary. The economic agents in the model are individuals, firms and the government

3.2 Methodology

In order to achieve the objectives of the study, two methodological techniques are used. The first involves the use of a detrending technique called the Hodrick-Prescott (HP) filter as used in several works including Agenor *et al.* (2000), Alper (2000) and Alege (2008). This technique helps us to identify the co-movement between asset prices, consumer price inflation and the business cycle in Nigeria.

3.2.1 The Hodrick-Prescott Filter

The HP filter according to Agenor *et al.* (2000) has the capacity to develop a set of stylised facts in relation to the contemporaneous movement and volatility. The process starts by making sure all the variables of interest are stationary through the use of the unit root test. This is followed up by employing the HP filter to extract the trend component of each of the macroeconomic variables. This is done by removing the long run component of the series that allows the variables to vary slowly over time. Thereafter the cross correlation of the cyclical components of the series are computed in order to arrive at the stylised facts.

There are three major statistical analyses that can be derived from the HP filter. First is the level of fluctuations which is determined through the volatility and relative volatility. The examination of the standard deviation of the cyclical component helps to determine the level of volatility and persistence. Second, is establishing the contemporaneous movement of a variable in respect to another variable. Two variables are said to be pro-cyclical, countercyclical or acyclical if the cross correlation is positive, negative or zero, respectively. Third, is the determination of the phase shift: to find out whether a variable is a leading or lagging indicator.

3.2.2 Bayesian Vector Autoregressive (BVAR) Model

There are major statistical analyses can be derived from the HP filter. First is the level of fluctuations which is determined through the volatility and relative volatility. The examination of the standard deviation of the cyclical component helps to determine the level of volatility and persistence. Second, is establishing the contemporaneous movement of a variable in respect to another variable. Two variables are said to be pro-cyclical, countercyclical or acyclical if the cross correlation is positive, negative or zero, respectively. Third, is the determination of the phase shift: to find out whether a variable is a leading or lagging indicator.

3.2.3 Model Specification

There major statistical analyses can be derived from the HP filter. First is the level of fluctuations which is determined through the volatility and relative volatility. The examination of the standard deviation of the cyclical component helps to determine the level of volatility and persistence. Second, is establishing the contemporaneous movement of a variable in respect to another variable. Two variables are said to be pro-cyclical, countercyclical or acyclical if the cross correlation is positive, negative or zero, respectively. Third, is the determination of the phase shift: to find out whether a variable is a leading or lagging indicator.

$$RGDP_t = \alpha_{10} + \sum_{j=1}^{P} \alpha_{11}^{j} RINTR_{t-j} + \sum_{j=1}^{P} \alpha_{12}^{j} ASI_{t-j} + \sum_{j=1}^{P} \alpha_{13}^{j} M2_{t-j} + \sum_{j=1}^{P} \alpha_{14}^{j} INV_{t-j} +$$

$$\sum_{j=1}^{P} \alpha_{15}^{j} GEX_{t-j} + \sum_{j=1}^{P} \alpha_{16}^{j} PCON_{t-j} + \sum_{j=1}^{P} \alpha_{17}^{j} INF_{t-j} + \sum_{j=1}^{P} \alpha_{18}^{j} RGDP_{t-j} + \mu_t^{RGDP} \ldots\ldots.(4.4.3)$$

4. SOME STYLISED FACTS

Table 1 show that the percentage standard deviation of the stock market price index as indicated by volatility is 26.86 percent; this indicates that the stock market in Nigeria is highly volatile as expected following theoretical considerations of the stylised facts. This implies that cyclical shocks to the stock market are perceived to the business environment as permanent thereby having an impact to the decisions of both individuals and firms.

The major finding of this analysis shows that the cross-correlation between the all share index and consumer price inflation is countercyclical. This implies that as the stock market price increases, inflation tends to fall. This finding validates the expectations of this paper in the sense that as the stock market price increases; it shows that there is optimism in the economy that makes investors to rather invest a larger proportion of their income into the stock market with the expectation of further improvement in the market which increases their wealth balance rather than choosing to use their income for immediate consumption. The phase shift indicates that inflation is a lagging indicator meaning that it responds after changes in the stock market price.

The cross correlation between the all share index and real gross domestic product (RGDP) as well as all share index and investment shows that they are both pro-cyclical indicating that as the stock market price increases, total output and investment in the economy tends to increase. This implies that improvements in the stock market price spurs investment decisions by both domestic and foreign investors that aids in the general improvement in the economy. Investment is seen to be much volatile than real gross domestic product, but less volatile than the all share index in Nigeria. The phase shifts shows that they are both lagging indicators.

Consumption, government spending, money supply and the real interest rate all have a pro-cyclical relationship with the all share index in Nigeria. This informs us that as the stock market price improves; consumption, the level of government spending, the volume of the money in the economy and the real interest also increases. The phase shift shows that they are all leading indicators.

Table 1: Cyclical Behaviour of ASI, Consumer Price Inflation and the Business Cycle

Variable	Vol.	Relative Vol.	Con. Correlation	Decision	Phase shift
ASI	26.86%	-	**-**	-	-
RGDP	6.03%	0.22	**0.33**	Pro-cyclical	Lagging
CONS	10.97%	0.41	**0.13**	Pro-cyclical	Leading
INV	18.32%	0.68	**0.03**	Pro-cyclical	Lagging
GEX	33.76%	1.26	**0.32**	Pro-cyclical	Leading
M2	15.21%	0.57	**0.15**	Pro-cyclical	Leading
RINTR	1643%	61.2	**0.06**	Pro-cyclical	Leading
INF	60.35%	2.25	**-0.09**	Countercyclical	Lagging

Source: Researchers' compilation using EViews 8.0

Note: Vol. represents the volatility of the cyclical component of the series; Relative vol. indicates the relative volatility of the series with respect to ASI; Con. Correlation represents the contemporaneous correlation between ASI and the variables.

5. ESTIMATION OF A BVAR MODEL FOR NIGERIA

There major statistical analyses can be derived from the HP filter. First is the level of fluctuations which is determined through the volatility and relative volatility. The examination of the standard deviation of the cyclical component helps to determine the level of volatility and persistence. Second, is establishing the contemporaneous movement of a variable in respect to another variable. Two variables are said to be pro-cyclical, countercyclical or acyclical if the cross correlation is positive, negative or zero, respectively. Third, is the determination of the phase shift: to find out whether a variable is a leading or lagging indicator.

5.1 BVAR Stability Test

The results of the impulse response functions and variance decomposition are considered to be valid when the BVAR model is stable or stationary. In the case where a BVAR model is not stable or non-stationary, the model is considered to be explosive or diverges from the long-run equilibrium path. One way to assess the stability of the BVAR model is through the use of the Autoregressive (AR) Roots table or graph.

The AR Roots analysis presents information on the roots and modulus. If the modulus is less than and lies inside the unit, then the model is considered to be stable or stationary. However, in the case where there is a violation of this rule, then there will be the need to take the first difference.

Table 2: AR Roots Table

Roots	Modulus
0.976913	0.976913
0.753833	0.753833
0.240083 - 0.172174i	0.295438
0.240083 + 0.172174i	0.295438
0.208458	0.208458
0.020058 - 0.178331i	0.179455
0.020058 + 0.178331i	0.179455
-0.159772 - 0.034868i	0.163533
-0.159772 + 0.034868i	0.163533
-0.137819	0.137819
-0.090486 - 0.071097i	0.115076
-0.090486 + 0.071097i	0.115076
-0.030557 - 0.109439i	0.113624
-0.030557 + 0.109439i	0.113624
0.072182	0.072182
-0.040900	0.040900

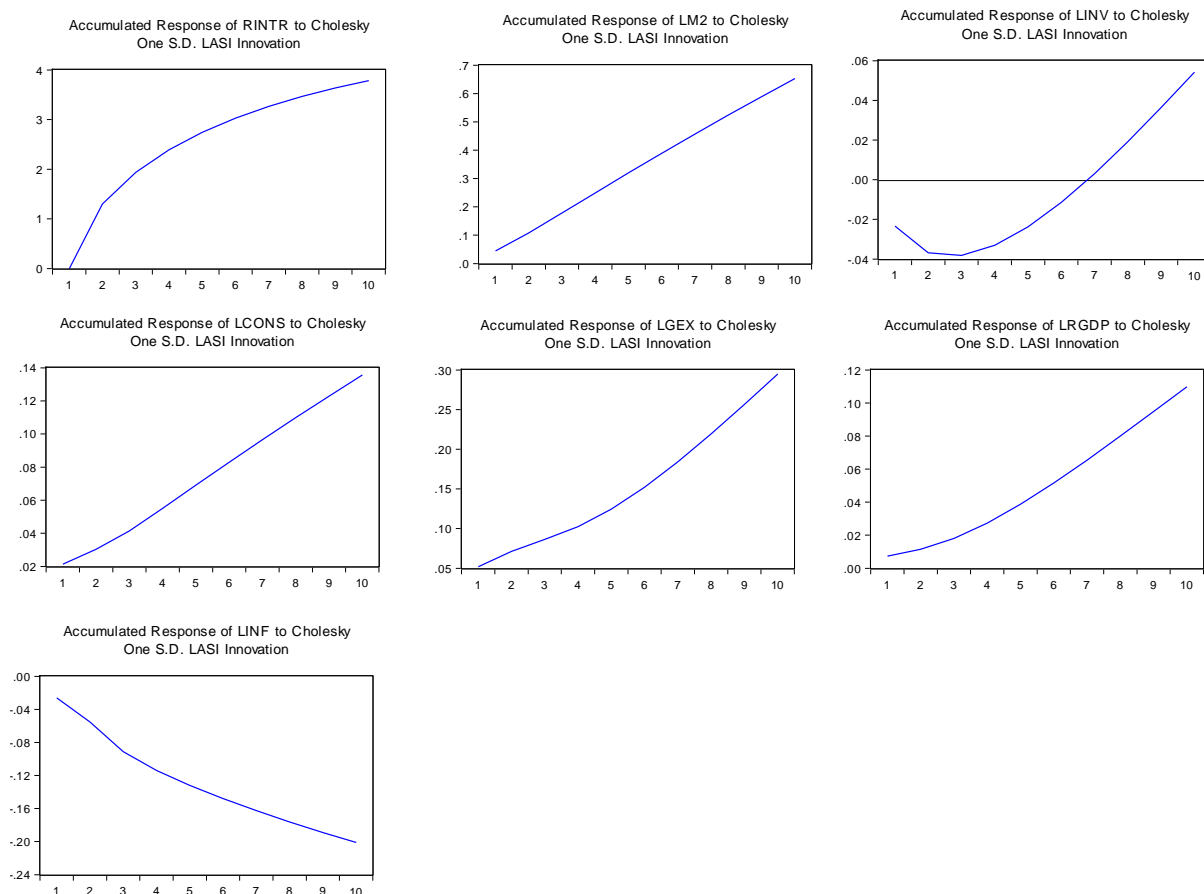Source: Researchers' compilation using EViews 8.0

The results of the AR Roots table shows that the modulus is less than one indicating that the BVAR model specified is stable or stationary. Therefore, the results obtained from the both the impulse response functions and variance decomposition are valid. In addition, the model converges to a long-run equilibrium path.

5.2 Impulse Response Function

From Table 3, the study found that a one standard deviation positive innovation in ASI will bring about a 0.03 percent fall in inflation rate even though consumption increased by 0.02 percent in the first period. This means that although households increase consumption during periods of stock market boom, inflation will drop as investors pump the stock market with even more money to benefit from the positive momentum in the stock market. A positive shock to ASI also has negative effects on total investment in the economy. This is because capital is shifted from the productive real economy to participate in the casino-like stock market. Real GDP, GEX and Money supply benefit from a positive innovation to ASI but by less than 1 percent growth, thus, exhibiting an inelastic positive response to innovations to ASI.

Figure 1: Impulse Response of the Macroeconomic Variables to a Shock in ASI

Source: Researchers' compilation using EViews 8.0

Table 3: Impulse Response of the Macroeconomic Variables to a Shock in ASI

	EFFECT OF A SHOCK TO LASI						
Period	RINTR	LM2	LINV	LGEX	LRGDP	LCONS	LINFL
1	0.000000	0.044219	-0.023453	0.052029	0.007358	0.021406	-0.026012
2	1.299684	0.107434	-0.036819	0.071281	0.011537	0.030275	-0.055245
3	1.934892	0.178371	-0.038110	0.086512	0.018045	0.041500	-0.091128
4	2.392996	0.249555	-0.033031	0.102523	0.027325	0.055076	-0.113983
5	2.742382	0.319940	-0.023771	0.124470	0.038743	0.069046	-0.132037
6	3.028122	0.389140	-0.011432	0.152093	0.051621	0.082929	-0.147894
7	3.265675	0.457108	0.003114	0.184104	0.065470	0.096542	-0.162490
8	3.465709	0.523807	0.019215	0.219207	0.079943	0.109855	-0.176117
9	3.636499	0.589200	0.036374	0.256372	0.094790	0.122871	-0.188938
10	3.784636	0.653263	0.054219	0.294834	0.109827	0.135595	-0.201081

Source: Researchers' compilation using EViews 8.0

5.3 Variance Decomposition

From Table 4, the study found that innovations to RGDP explain between 17 and 21 percent of the forecast error variance in consumption over the ten periods. Also, innovations to ASI contribute between 3 and 11 percent of the forecast error variance in consumption over the ten periods. Innovations to money supply contributes between 0 and 9 percent of the forecast error variance in consumption over the ten periods. Innovations to RINTR, INV, GEX and INFL each explain less than 1 percent of the forecast error variance in CONS. The standard error shows that all the variables excluding CONS itself are insignificant in explaining forecast error variance in consumption over time.

From Table 4, the study found that on average innovations to RINTR explain about 14 percent of the forecast error variance in inflation over the ten periods. Investment has the second largest influence on variations in inflation as innovations to INV contribute approximately 5 percent of the forecast error variance in inflation over the ten periods. Innovations to money supply contributes about 3 percent of the forecast error variance in inflation over the ten periods. Innovations to ASI, GEX, RGDP and CONS each explain less than 1.5 percent of the forecast error variance in INFL. The standard error shows that INFL, RINTR, INV, M2 and CONS are statistically significant at 5 percent level of significance in explaining forecast error variance in inflation throughout the ten periods. However, innovations in ASI is only significant in explaining forecast error variance in inflation after the third period.

Table 4: Variance Decomposition of Consumption

VARIANCE DECOMPOSITION OF LCONS							
Period	S.E	RINTR	LASI	LM2	LINV	LGEX	LRGDP	LINF
1	17.22657	0.010997	3.272192	0.084847	0.742039	0.172439	20.85504	0.000000
2	17.29890	0.263277	3.735743	1.604469	0.723090	0.207069	20.48188	0.027770
3	17.32752	0.284670	4.491502	3.142296	0.704230	0.202211	20.00521	0.040840
4	17.34370	0.302699	5.588981	4.325456	0.692117	0.249268	19.52345	0.047373
5	17.35397	0.315697	6.702044	5.333477	0.680711	0.306198	19.08114	0.049762
6	17.36026	0.324774	7.750826	6.230749	0.669191	0.364926	18.67885	0.050385
7	17.36418	0.332214	8.713610	7.047236	0.658313	0.417944	18.31211	0.050604
8	17.36671	0.338731	9.595122	7.794636	0.648249	0.465242	17.97651	0.050740
9	17.36840	0.344579	10.40388	8.480502	0.638962	0.507698	17.66853	0.050857
10	17.36959	0.349877	11.14775	9.111143	0.630387	0.546118	17.38522	0.050966

Source: Researchers' compilation using EViews 8.0

Table 5: Variance Decomposition of Inflation

VARIANCE DECOMPOSITION OF LINF							
Period	S.E	RINTR	LASI	LM2	LINV	LGEX	LRGDP	LCONS
1	0.310117	13.65000	0.185829	2.944076	4.989886	0.291642	0.452654	0.954676
2	0.346833	14.00921	0.410782	3.253890	4.892839	0.320944	0.445342	0.939557
3	0.371463	13.94850	0.752914	3.242168	4.920619	0.337171	0.459313	0.943121
4	0.387971	13.92379	0.890747	3.271010	4.917068	0.338609	0.459565	0.944431
5	0.399985	13.90425	0.976249	3.314043	4.911298	0.344018	0.458908	0.944151
6	0.409254	13.88817	1.041974	3.355250	4.906032	0.346761	0.458377	0.943562
7	0.416772	13.87449	1.097546	3.392129	4.901355	0.347530	0.457956	0.943041
8	0.423116	13.86256	1.145886	3.425118	4.897182	0.347465	0.457723	0.942633
9	0.428635	13.85195	1.188598	3.455024	4.893419	0.347203	0.457707	0.942317
10	0.433546	13.84236	1.226848	3.482454	4.889992	0.347014	0.457885	0.942068

Source: Researchers' compilation using EViews 8.0

5.4 Granger Causality Test

From Table 6 below, at 5 percent level of significance, there exist a unidirectional Granger causality running from ASI to INFL after two lags. This means that the All Share Index is a useful predictor of the future value of inflation after a delay of just two years.

Table 6: Granger Causality Test

Pairwise Granger Causality Tests			
Lags: 2			
Null Hypothesis:	Obs	F-Statistic	Prob.
LINF does not Granger Cause LASI	28	2.01232	0.1565
LASI does not Granger Cause LINF		4.16859	0.0285

Source: Researchers' compilation using EViews 8.0

CONCLUSION

The objective of the study was to identify the relationship existing between asset prices, consumer price inflation, and the business cycle in Nigeria. In order to improve monetary policy decisions on price stability during times of stock price boom, this paper also examine the effect of innovations on the stock market index on consumer prices in Nigeria. The major finding of this analysis was the cross-correlation between the All Share Index and Consumer Price Inflation which that the relationship is countercyclical. This implies that as the stock market price increases, inflation tends to fall. This finding validates the expectation of this paper in the sense that as the stock market price increases, investors become overly optimistic and invest more in financial assets, thus reducing the money in circulation which hurts inflation. The phase shift indicates that inflation is a lagging indicator meaning that it responds after changes in the stock market price. Using the Granger causality test, the study found that ASI Granger causes inflation after 2 lags at 5 percent level of significance.

Also, the study found that the cross correlation between the all share index and real gross domestic product (RGDP) as well as all share index and investment shows that they are both procyclical indicating that as the stock market price increases, total output and investment in the economy tends to increase. This implies that improvements in the stock market price spurs investment decisions by both domestic and foreign investors that aids in the general improvement in the economy.

Finally, the study found that positive shocks to ASI during periods of asset price boom has a negative impact on inflation but leads to growth in aggregate consumption. Although ASI contributed less than 2 percent to variations in inflation over time, innovations to ASI was still significant in explaining forecast variance errors in inflation between the 3rd and 10th period. The

above stated findings contrast conventional knowledge as economists originally believed that stock price growth could cause inflation to increase overtime causing inflation to overshoot its target. Our findings are supported by easily verifiable facts as during the peak of the Nigerian stock market in 2007, inflation was at its lowest point in the last 30 years at just 5 percent.

RECOMMENDATIONS

From the following findings, we therefore recommend the following monetary policies:

1. The monetary authority should observe growth in stock prices carefully to ensure that inflation does not miss its targets since All Share Index is a useful predictor of changes to consumer prices in the short to medium term.
2. Although stock market prices do not wield strong influence on long term variations in inflation, the Central Bank must still ensure that stock prices and money supply are not susceptible to sudden negative changes due to their influence on both aggregate demand and inflation.
3. During periods of asset price boom, Central Banks should raise interest rate by only a few basis points (since the effect of a shock to ASI is mild on inflation and output) to control the growth momentum in stock market. This is because a stock market boom could cause the economy to overheat thus deflating the economy.
4. Monetary policies that encourage rapid output growth is needed to boost aggregate demand since innovations to real GDP accounts for the second highest forecast error variance in consumption.
5. Since inflation lags ASI, during periods of stock price boom, the monetary authority can modestly reduce the supply of money to reduce the deflationary pressure that may arise from a stock price bubble.

REFERENCES

Airaudo, M., Nisticò, S., & Zanna, L.-F. (2015). Learning, Monetary Policy and Asset Prices. *IMF Working Paper* , 1-32.

CBN. (2016). *Statistical Bulletin A.* Abuja: Central Bank of Nigeria.

Filardo, A. (2000). Monetary Policy and Asset Prices. *Federal Reserve Bank of Kansas City Economic Review* , 11-37.

Gilchrista, S., & Leahy, J. (2002). Monetary Policy and Asset Prices. *Journal of Monetary Economics* , 75–97.

Keynes, J. M. (1936). *The General Theory of Employment, Interest and Money.* London: Macmillan and Co.

Selody, J., & Wilkins, C. (2004). Asset Prices and Monetary Policy: A Canadian Perspective on the Issues. *Bank of Canada Review*, 3-14.

Vickers, J. (2000). Monetary Policy and Asset Prices. *The Manchester School*, 1–22 .

Yao, S., Dan, L., & Loh, L. (2013). On China's Monetary Policy and Asset Prices. *Applied Financial Economics*, 377-392.